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Abstract

Customer data collected from business transactions have long been used in the retailing industry as a basis for analysing company performance and consumer behaviour. However, despite the widespread recognition of the value of customer data for retailers, relatively few studies have examined the process by which data are transformed into information and organisational knowledge. Such transformation is considered as part of organizational learning. Even fewer studies have considered the dynamics of cross-functional knowledge sharing and integration within the retailing sector. To fill this gap, this research-in-progress looks at one of the Britain's largest retailers, Boots the Chemist (BTC), transforms its customer data into knowledge via organizational learning. The likely contribution to the literature is like such attempt could be considered as the first step towards linking up the growing division of organizational learning and knowledge management studies. The purpose of the research is to examine how customer data collected from business transactions were used as the foundation for generating strategically valuable information and knowledge, and how knowledge was shared and integrated across business functions. Several important issues are to be highlighted in the study, in particular: (1) the transformation of data, information and knowledge via organizational learning; (2) the integration of departmental knowledge and the creation of new organisational knowledge; (3) knowledge sharing as a socio-technical phenomenon. The case illustrates the importance of developing and maintaining inter-departmental relationships as a means of sharing and integrating strategically valuable knowledge.

Keywords: Knowledge Management; Organizational Learning; British Retailer

Introduction

Since the early 1990s, there has been an increasing emphasis on issues related to the so-called knowledge-based economy (Quinn, 1992; Drucker, 1993). This has led to the recognition of knowledge as one of the most important resources that contribute to the competitive advantage of an organization (Grant, 1996; Drucker, 1993). As a result, knowledge-based technological changes, interactive organizational learning, knowledge sharing, knowledge integration and other knowledge related activities have become the focal elements of many of the existing studies and practices (Grant, 1996; Fruin, 1997; Stewart, 1997; Sveiby, 1997).

In particular, an increasing amount of research interest has been shown in the management of knowledge in relation to organisational efficiency (Nonaka, 1994; Grant, 1996; Kogut and Zander, 1996) and competitive advantage (Matusik and Hill, 1998). Despite its growing popularity, in most of the previous studies, the interrelationships of managing knowledge and organizational learning have been ignored almost completely. Organizational learning processes are simply taken for granted as part of the creation and management of tacit knowledge. Little is known about the roles and nature of the organizational learning in organizations' attempts to manage knowledge.

Moreover, while more and more knowledge management studies are industry specified (for example, biotechnology, pharmaceuticals, IT and the service industry (Boisot and Griffiths 1999; Klavans and Deeds, 1997; Pisano, 1994; Starbuck, 1992)), relatively few studies have examined the dynamics of knowledge management in the retailing sector. Therefore, in order to shed some light into the interrelationships of managing knowledge and organizational learning, an in-depth case study of a knowledge-intensive organisation in the British retailing industry was conducted to gain much needed empirical evidence relating to knowledge management (Leidner, 1999) and organizational learning. In particular, the authors want to know (1) What are the roles of organizational learning in transforming customer data into information and knowledge? (2) What are the interrelationships of managing knowledge and organizational learning in an organization?

This research-in-progress paper is divided into the following sections. After the introduction, the methods used to carry out the study are described. The background of the case study is presented in Section 3. The business processes of managing customer data, information and organisational knowledge are also discussed. Section 4 summarises the preliminary findings and the conclusions of the study are discussed in section 5.

Methods

Customer data collected from business transactions have been commonly used in the retailing industry as a basis for understanding consumers' shopping behaviours, particularly in chain stores. However, the process by which customer data are transformed into information and become strategically valuable knowledge remains something of an unknown 'black box'. The present study therefore seeks to consider this problem in relation to the experience of one of Britain's largest retailers, Boots the Chemist (BTC), and to articulate useful lessons that can be applied to similar industrial settings.

Three major sources of data were collected in order to portray the process of knowledge management within BTC: eighteen members of staff from the information systems, Marketing, Space Management, and Stores and Business Process Redesign teams were interviewed during March and June 1999; on-site observation was also undertaken; and secondary data were collected from company Intranet and internal documents.

The Case Study

The Boots Company is one of the UK's largest enterprises, with a sales turnover of more than £5 billion pounds in 1998. BTC, one of the largest subsidiaries of the Boots Company, accounts for more than 70 per cent of the company's workforce and sales turnover. As the largest retail chemist in the UK, BTC has more 1,300 stores located in high streets and out-of-town shopping areas across the UK and also the Republic of Ireland. In the UK more than one in ten of all medical prescriptions issued are dispensed by BTC. BTC's UK stores are divided into 15 regional groupings. In addition, some functions – e.g. IS, personnel, marketing and finance – are centralised, and there are three business units based on product categories: healthcare, beauty and leisure.

Knowledge Embedded Within Business Functions

Some of BTC's most vital knowledge is located in the three business units. This relates to the understanding of product categories, the identification of targeted customer groups for specific products, the methods of achieving sales targets, and details of suppliers and supplier relationships. In particular, from the perspective of BTC's stores, essential knowledge lies in the understanding of customers in their local areas, the demand for various types of products, and the product ranges that satisfy the needs of customers. The critical knowledge for the Marketing Department includes the understanding of how products should be promoted, what resources are needed, and what degree of efficiency a promotion programme can achieve. From the IS functional point of view, knowledge is divided into two categories. First, there is technical knowledge, including the understanding of technology used in the business, associated tools and techniques such as programming languages, computer operations, computer security and data management. Secondly, there is the knowledge of various business processes. For example, the logistics-staff relies heavily on their knowledge of how different suppliers operate, warehouse management, the arrangement of delivery routines, and the time needed to deliver products required by the stores efficiently and accurately.

The Traditional Approach to Managing Data, Information and Knowledge

Historically, BTC's approach towards managing information and knowledge was often criticised by some of its employees for being too 'individualistic' or lacking interactions across various business functions. Typically, customers' data are gathered from business transactions in stores and are automatically forwarded to the head office. In other words, customer data flow from the stores to the head office, and in return information flowed back to the local stores via the regional office. It was like a funnel system, with the head office acting as a valve to control the flow of data and information. These procedures were often criticised by employees for their failure to promote knowledge sharing across different business function units.

Preliminary Findings and Discussions

The purpose of this case study is to examine how knowledge is managed in a UK retailing company and to offer insights into how customer data are transformed into information and then further developed into strategically valuable knowledge via organizational learning. Three important issues emerge from the study: the transformation of data, information and knowledge; the integration of departmental knowledge and the creation of organisational knowledge; and the socio-technical perspective of knowledge sharing. Each of these three issues will now be discussed in turn.

The Transformation of Data, Information and Knowledge– Learning by Doing: The Beginning of Organizational Learning Process

The transformation of data, information and knowledge plays a fundamental, critical role in the management of organisational knowledge and hence in the determination of the organisation's competitive advantage. The actual transformation process can be considered as the beginning of an organizational learning process. The initial findings of case suggest that in the retailing sector, customer data collected through business serve as one of the most important sources for understanding customers' shopping behaviour. However, such data have no commercial value unless they are technically analysed. This process starts when customer data from the Marketing Department and other business units are analysed and applied in order to develop appropriate analytical programmes and software. In this way, customer data are further transformed into useful information. This information is then further distributed across business functions, the head office, regional offices and local stores through mechanisms such as the Intranet and written reports. At this stage, organizational learning is done more on a collective level whereby employees go through processes of learning and re-learning.

However, it is also clear that information has no particular value until it is transformed into knowledge. In terms of the transformation process from information to knowledge, the BTC case suggests that the information received by business functions becomes the foundation for decision making and strategy formulation, e.g. in the design of promotion plans and the arrangement of store space. Vital lessons are articulated through a process of trial and error, and valuable knowledge is generated through the learning-by-doing process. Once further inputs of experience and expertise are added to the information provided, organisational knowledge becomes available for utilisation. In particular, the knowledge gained by each business function is further applied in the analysis of data and information, and in the making of decisions. Hence, it is clear in the study that the strategic value of data and information can be realised when it is transformed into knowledge. However, according to early analysis, the value of knowledge will not be maximised unless the knowledge embedded within each business function is integrated (Grant, 1996).

The Integration of Departmental Knowledge and the Creation of New Organisational Knowledge by Means of Mutual Learning and Perspective-taking: Step Two

Findings of the study also indicate that once the transformation has taken place, organizational learning continues to take place not only amongst regional stores,

but also between the regional stores and the head office. The sharing of best practices across regions and the head office's strategies in stores is an example that illustrates how knowledge is integrated by sharing and learning. The two critical conditions of knowledge integration are mutual learning and perspective-taking (Tenkasi and Boland, 1996). Such conditions highlight the importance of knowledge acquisition and the building of a shared, collective mental model (Senge, 1990). In this case, we also identified that mutual learning represents the intellectual aspect of knowledge integration, and perspective-taking indicates the emotional aspect of knowledge integration.

The BTC case suggests that perspective-taking depends on the social interaction and communication amongst members of staff from various business functions. By redesigning business processes and reallocating business functions physically, the organisation was able to enhance cross-functional collaboration and communication. This facilitated the disclosure of the perspectives held by each function and further eased the process of building a shared, cross-functional perspective. The research findings show that the intellectual and emotional dimensions of knowledge integration influence the process by which organisational knowledge is created.

Nahapiet and Ghoshal (1998) suggest that organisational knowledge is created through processes of exchange and combination. In the case of BTC, business functions share not only the information that they analyse with each other, but also the knowledge articulated through common lessons and experiences. The social interaction and communication amongst business functions serve as a vehicle for exchanging ideas and best practices. This interaction thus makes previously embedded departmental knowledge available for other functions to acquire and to share. Most importantly, it provides a foundation for combining different sources of knowledge as the trigger for creating new knowledge. Furthermore, in BTC, created knowledge is further applied by members of staff and business functions to guide decision making and strategy formulation. For instance, business units and the Marketing Department use feedback from the regional stores as a basis for formulating and adjusting strategies. Business processes and organisational routines are gradually modified in response to the input of new knowledge. In this way, organisational knowledge evolves and is redefined.

The Sharing of Knowledge is more than a Technical Issue: Final Step

After the integration and creation of organizational knowledge, knowledge sharing takes place via social and technological means. Our early findings suggest that that sharing knowledge in an organisation cannot be studied

from the technical or social perspective in isolation. As indicated in the findings, the sophistication of IT and IS used in obtaining customer data is not sufficient to transform information into knowledge. On the other hand, it is also true that only social interactions amongst business functions without the support of IT is not sufficient to handle the amount of data generated by stores. Thus, despite the fact that the accumulation of customer data and the development of market intelligence requires sophisticated technologies, the processes by which data are transformed into information, and information is used to create knowledge, is best understood and facilitated through the interplay of social and technical elements. In other words, the study suggests that transformation and learning processes are constructed socially, managing knowledge, as a multifaceted and context-dependent process, involves inter-relationships between social and technical issues.

Conclusions

The study has examined the experience of one major British retailer in transforming its customer data into information and knowledge via organizational learning as a strategy for achieving profit maximisation. In particular, the findings highlight the importance of learning-by-doing, mutual learning and perspective-taking, and socio-technical consideration as ways to managing organizational knowledge.

The three steps identified above do not imply that managing knowledge is a static and step-by-step learning-process. Instead, it requires an understanding and appreciation for its context-dependent and dynamic nature. Further analysis will have to be carried out in determining the interrelationships of the three steps described earlier to further support the claim that knowledge management encompasses and is intended to support individual and organizational learning. In particular, findings of further studies should allow better understandings of the factors which provide the linkage between knowledge management and organizational learning and the organizational processes that enable (or inhibit) information technology as an enabler of knowledge capture, sharing, and creation.

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